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EXAMPLES OF COOPERATION BETWEEN SOVIET SCIENTISTS AND WORKERS

F. V. Kruglikov

In 1949, scientists and workers contributed over 450,000 inventions and efficiency suggestions to industry. In turn, Soviet industry in 1949 created over 300 important new designs of high-production machines.

Academician S. I. Vavilov designed daylight lamps now widely used in illumination engineering. Academician I. P. Bardin in cooperation with many engineers worked out the technology involved in the use of pure oxygen in the open-hearth process.

Electricians of the Plant imeni S. M. Kirov in cooperation with Prof V. P. Vologdin, corresponding member of the Academy of Sciences USSR, designed a powerful high-frequency generator for heat treating metals. The Technological Institute imeni Lensovet and the laboratory of the Tannery imeni Komintern solved the problem of using infrared rays for drying hides, thus shortening the drying process from 12 hours to 30 minutes. The test shop of the Lenin-grad Instrument Plant has given industry the valuable vibroscopes, important for high-speed metal-treating methods, and has expanded the production of versatile measuring instruments to accelerate quality control of manufactured objects, e.g., the "Multicheck," used in the USSR to check simultaneously several dimensions of artillery shells, etc.

Previously the "Krasnogvardeyets" Plant required 4 hours to analyze silicon alone in a metal; now, however, less than an hour is required to determine the percentage content of silicon, manganese, nickel, and molybdenum in alloys by spectral analysis as developed by Prof V. K. Prokof'yev, Doctor of Physicomathematical Sciences. The plant laboratory has also devised a spectral method for determining the thickness of galvanic plating; this method speeded up control processes ten times. The plant also has installed machines for electric-spark metal machining. The electric-spark method is now employed widely in shops to machine dies and press forms of complex configuration, to cut very small holes in particularly hard metals, and to remove excess metal, thus reducing costs and improving quality. Electric-spark hardening of cutting tools and dies by a solid alloy or graphite is also used widely at the plant.

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In the steel-casting shop of the Neva Machine-Building Plant imeni V. I. Lenin, die casting under gas pressure has been introduced, and compressed air is used for pouring forms.

The "Electroapparat" Plant and the All-Union Power Engineering Institute imeni V. I. Lenin (Moscow) have put out a heavy-duty 110-kv air switch for high-voltage networks, which is considerably better in its technico-economic indexes than oil switches.

The "Pnevmatika" Plant produces improved lighter pneumatic drills (OM-2) and also a pneumatic rock drill (SG-2) for drilling holes in coal seams or rock.

The Machine-Building Plant imeni F. Engel's has produced a new circular knitting machine (mark IN) for the knitted fabrics industry.

The Kirov Plant and the Institute for Mechanization and Electrification of the Lumber Industry have improved the loading unit for dragging tractors, considerably increasing the tractor's usefulness.

The Electric Traction Laboratory, Polytechnical Institute imeni M. I. Kalinin, helped Car-Repair Plant No 1 to build a new all-metal streetcar coach (LM-49).

The Chair of Electrometallurgy (Prof Yu. V. Baymak and collaborators), Institute imeni M. I. Kalinin, has the "Krasnyy Vyborzhets" plant to reclaim copper from the pickling solution, thus reducing the expenditure of acid by one third and saving up to 10 tons of copper per year.

At the Kirov Plant, milling machine operator I. D. Leonov, in cooperation with technical engineer N. A. Sukhanov, fulfilled 200% of the norm in a most important operation, reducing the time necessary for machining a part from 2½ hours to 7 or 8 minutes.

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